

CLAIMS**What is Claimed:**

1. In a mobile station storing a list of wireless communications systems, a system acquisition procedure comprising the steps of:

selecting a group of wireless communications systems from the list in accordance with a predetermined system acquisition procedure, the group of wireless communications systems having a first system acquisition order;

measuring a signal quality for each of the selected systems;

reprioritizing the group of wireless communications systems in accordance with the measured signal quality, the reprioritized group of wireless communications systems having a second system acquisition order; and

attempting to acquire the wireless communications system having the highest priority in accordance with the second system acquisition order.

2. The method of Claim 1 wherein the list of wireless communications systems is a preferred roaming list including a geographic region identifier and the step of selecting a group of wireless communications systems includes determining a current geographic region of the mobile station and selecting the listed wireless communications systems having a geographic region identifier that corresponds to the current geographic region of the mobile station, and

wherein the first system acquisition order is based on the relative order of the selected wireless communications systems in the preferred roaming list.

3. The method of Claim 2 wherein each wireless communications system identified in the preferred roaming list has a corresponding desirability level, at least two of the selected systems sharing the same level of desirability, and

wherein the step of reprioritizing comprises locating selected systems that share the same desirability level and sorting the located systems by the measured signal strength.

4. The method of Claim 3 wherein each wireless communications system identified in the preferred roaming list has a corresponding desirability level and the step of reprioritizing comprises the steps of:

for each selected system, adjusting the corresponding desirability level based on the corresponding measured signal strength, the adjusted desirability criteria being stored in the group of wireless communications systems; and

sorting the group of wireless communications systems by the adjusted desirability levels.

5. The method of Claim 1 wherein the step of reprioritizing comprises removing a selected system from the group if its corresponding measured signal quality fails to meet a minimum threshold.

6. The method of Claim 1 wherein the step of measuring a signal quality includes calculating a ratio E_c/I_o of the received signal.

7. A mobile station comprising:
a memory storing a preferred roaming list, the preferred roaming list including a first plurality of system identifiers and corresponding acquisition parameters; and
a processing circuitry adapted to select wireless communications systems from the preferred roaming list in accordance with a predetermined system acquisition procedure, the selected wireless communications systems have a corresponding system acquisition order,
wherein the processing circuitry is further adapted to measure a signal quality of each selected system and modify the system acquisition order based on the measured signal qualities, the modified system acquisition order increasing the efficiency of the system acquisition process.

8. The mobile station of Claim 7 wherein the selected wireless communications systems include corresponding desirability criteria, and
wherein the processing circuitry is further adapted to adjust the corresponding desirability criteria of a selected system if the corresponding signal strength measurement

exceeds a first threshold, and sort the selected wireless communications systems using the
6 adjusted desirability criteria.

9. The mobile station of Claim 7 wherein the measured signal quality for each
2 system includes a signal-to-noise ratio of the received signal, the signal-to-noise ratio
corresponding to a likelihood that the corresponding system would be acquired.

10. In a multi-mode mobile station adapted to operate in CDMA and AMPS modes, a
2 method for acquiring a wireless communications system comprising the steps of:

analyzing a signal received on a channel associated with a candidate communications
system;

determining, based on the analysis of the received signal, whether the candidate
communications system is likely to be available for acquisition by the mobile station; and

attempting to acquire the candidate communications system only if the candidate
communications system is likely to be available for acquisition.

11. The method of Claim 10 wherein the step of analyzing comprises switching to a
channel associated with the candidate communications system and testing a signal quality of the
received signal.

12. The method of Claim 11 wherein the mobile station includes a table of known
2 communications systems, each known communications system having a relative desirability, and
wherein the candidate communications system is selected from the table of known
4 communications systems in accordance with a predetermined system acquisition procedure.

13. The method of Claim 11 wherein the tested signal quality is a received signal
2 strength measurement.

14. The method of Claim 11 wherein the tested signal quality is a signal-to-noise ratio of
2 the received signal.

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15. The method of Claim 11 wherein the candidate communications system is likely to
2 be available if the measured signal quality exceeds a predetermined threshold value.

16. The method of Claim 11 further comprising the step of selecting a set of candidate
2 communications systems, wherein the steps of analyzing and determining are repeated for each
candidate communications system in the set and the step of attempting is performed for the
4 candidate communications system that is most likely to be acquired.

17. The method of Claim 16 further comprising the step of sorting the candidate
2 communications systems in order of measured signal quality, the sorted order defining an
acquisition order for the set of candidate communications systems.

18. In a wireless device, an integrated circuit comprising:
2 a system determination unit adapted to identify candidate communications systems in a
current geographic region of the wireless device; and
4 a searcher coupled to the system determination unit, the searcher adapted to analyze a
signal quality of at least one of the identified wireless communications systems to determine a
6 likelihood of whether the wireless communications system will be acquired.

19. The integrated circuit of Claim 18, wherein the searcher measures the strength of
2 a received signal corresponding to each identified wireless communications system.

20. The integrated circuit of Claim 18, wherein the searcher calculates the signal-to-
2 noise ratio E_c/I_o of a received signal for each identified wireless communications system.

21. The integrated circuit of Claim 18 further comprising a memory coupled to the
2 system determination unit, the memory storing a list of known communications systems, each
known communications system having an associated geographic region and relative desirability,
4 wherein the systems analyzed by the searcher are selected from the system table by the
system determination unit.

22. The integrated circuit of Claim 18 wherein the system determination unit is
2 adapted to transmit an instruction to the searcher, the instruction including a test identifier; and
wherein, in response to a received instruction, the searcher analyzes the signal quality of
4 at least one of the identified wireless communications systems using a test method identified by
the test identifier.

23. The integrated circuit of Claim 22 wherein the transmitted instruction further
2 includes a threshold value, and wherein the searcher transmits a notification message to the
system determination unit when at least one analyzed signal quality exceeds the threshold value.

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